# FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

**March 17 to March 23, 2013 (Week 12)**

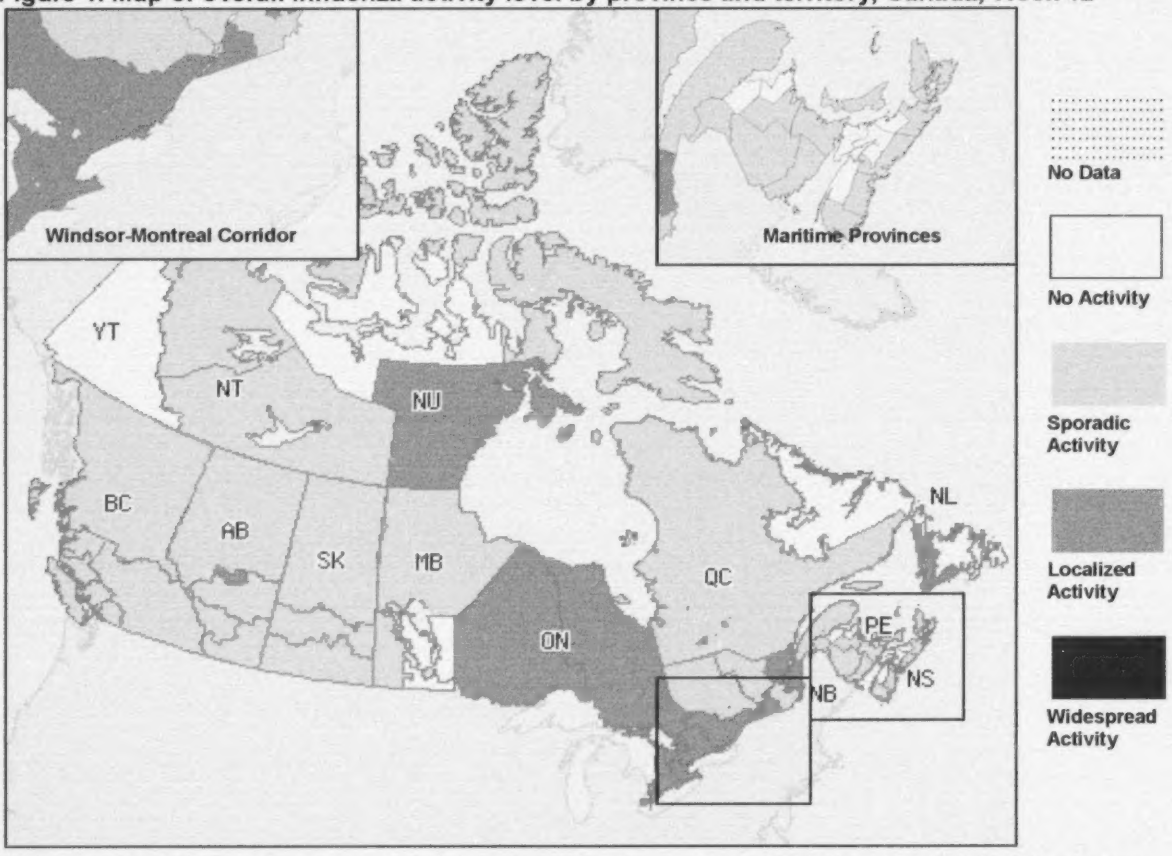
## Overall Summary

- Overall influenza activity continues to decline. In week 12, no region reported widespread activity, and many surveillance indicators decreased, including the ILI consultation rate, the antiviral prescription rate, and the number of paediatric hospitalizations with influenza.
- Detections of influenza were similar to week 11, and the proportion of influenza B continues to increase.
- In week 12, 89% of paediatric hospitalizations were associated with influenza B.

## Influenza Activity (geographic spread) and Outbreaks

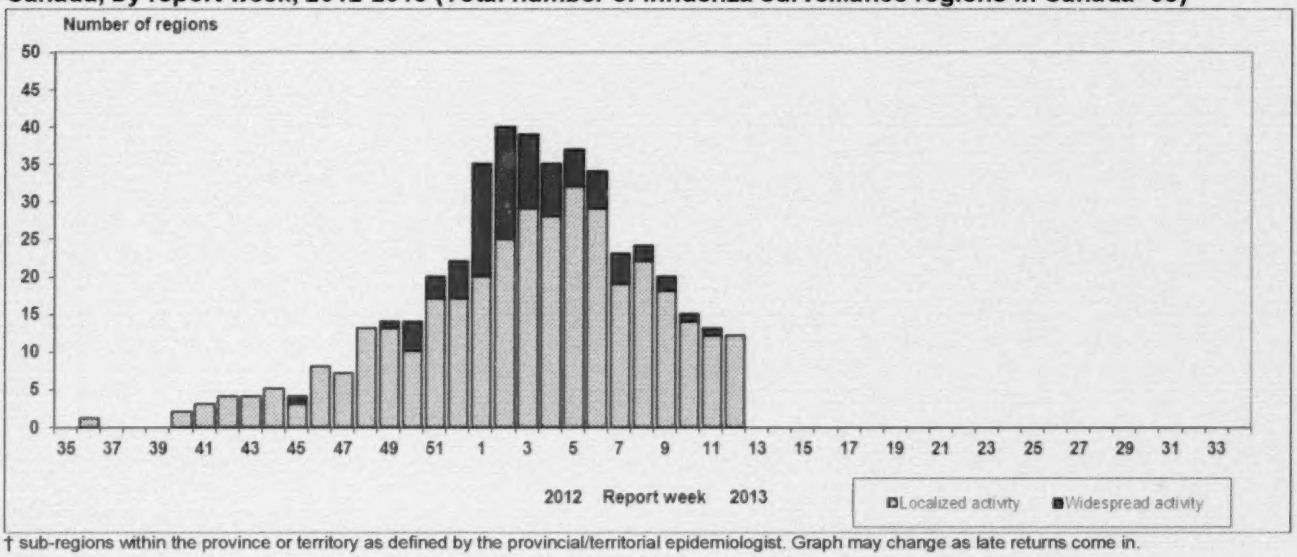
In week 12, no regions reported widespread activity and 12 regions [in AB(1), ON(7), QC(2), NL(1) and NU(1)] reported localized activity. The number of regions reporting widespread or localized activity decreased compared to the previous week and continued to follow the overall decline in influenza/ILI activity from the peak in early January (Figures 1 and 2). Nine new influenza outbreaks were reported: four in long-term-care facilities and five in other facilities or communities (Figure 3).

**Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 12**



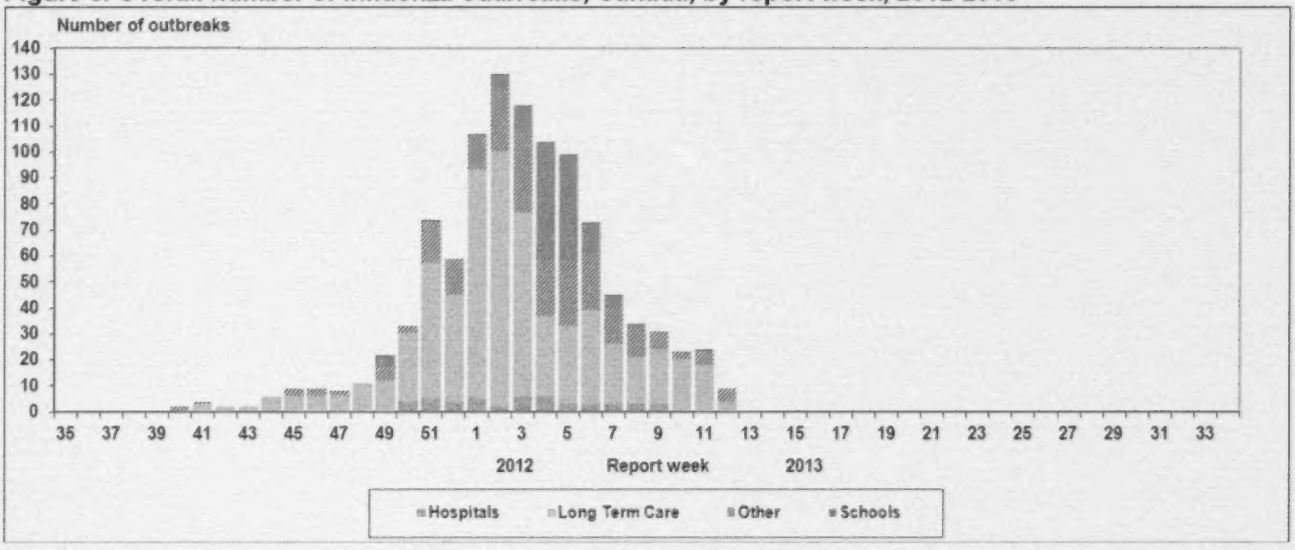

Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

**Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)**




† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

**Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013**




## Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests increased slightly from 11.7% in week 11 to 12.3% in week 12 (Figure 4). Among the influenza viruses detected in week 12 (n=490), 34.7% were positive for influenza A viruses [of which 17.6% were A(H1N1)pdm09, 14.7% were A(H3), and 67.6% were A(unsubtyped)] (Table 1). The proportion of influenza B detections has increased over the past 9 weeks from 2.1% in week 03 to 65.3% in week 12 (Figure 4). Cumulative influenza virus detections by type/subtype to date are as follows: 92.0% influenza A [34.8% A(H3), 4.0% A(H1N1)pdm09 and 61.2% A(unsubtyped)] and 8.0% influenza B (Table 1).

Detailed information on age and type/subtype has been received for 21,821 cases to date this season (Table 2). The proportion of cases by age group is as follows: 13.6% < 5 years; 9.0% between 5-19 years; 15.5% between 20-44 years; 16.9% between 45-64 years of age; 45.0% ≥ 65 years.

The percentage of tests positive decreased for RSV, from 16.7% in week 11 to 14.2% in week 12. The percentage of positive tests increased for rhinovirus (10.0%), hMPV (5.3%), and parainfluenza (4.2%); and decreased for coronavirus (3.0%) and adenovirus (1.1%) (Figure 5)*.

* For more details, see the weekly Respiratory Virus Detections in Canada Report.

**Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013**

| Reporting provinces | Weekly (March 17 to March 23, 2013) | | | | | | Cumulative (August 26, 2012 to March 23, 2013) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Influenza A | | | | | B | Influenza A | | | | | B |
| | A Total | A(H1) | A(H3) | Pand H1N1 | A (UnS)* | Total | A Total | A(H1) | A(H3) | Pand H1N1 | A (UnS)* | Total |
| BC | 15 | 0 | 7 | 6 | 2 | 18 | 1877 | 0 | 1440 | 203 | 234 | 313 |
| AB | 6 | 0 | 2 | 1 | 3 | 54 | 2282 | 0 | 1745 | 393 | 144 | 433 |
| SK | 4 | 0 | 0 | 3 | 1 | 23 | 813 | 0 | 474 | 62 | 277 | 151 |
| MB | 13 | 0 | 0 | 2 | 11 | 6 | 624 | 0 | 78 | 10 | 536 | 56 |
| ON | 51 | 0 | 10 | 12 | 29 | 71 | 8125 | 0 | 3753 | 306 | 4066 | 464 |
| QC | 36 | 0 | 0 | 1 | 35 | 144 | 9707 | 0 | 546 | 31 | 9130 | 856 |
| NB | 15 | 0 | 6 | 5 | 4 | 2 | 1819 | 0 | 763 | 55 | 1001 | 12 |
| NS | 20 | 0 | 0 | 0 | 20 | 0 | 355 | 0 | 165 | 5 | 185 | 3 |
| PE | 2 | 0 | 0 | 0 | 2 | 0 | 106 | 0 | 73 | 3 | 30 | 1 |
| NL | 8 | 0 | 0 | 0 | 8 | 2 | 709 | 0 | 152 | 0 | 557 | 11 |
| **Canada** | **170** | **0** | **25** | **30** | **115** | **320** | **26417** | **0** | **9189** | **1068** | **16160** | **2300** |

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

**Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013***

| Age groups | Weekly (March 17 to March 23, 2013) | | | | | Cumulative (Aug. 26, 2012 to March 23, 2013) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Influenza A | | | | B | Influenza A | | | | B |
| | A Total | Pandemic H1N1 | A/H3N2 | A unsubtyped | Total | A Total | Pandemic H1N1 | A/H3N2 | A unsubtyped | Total |
| <5 | 12 | 3 | 0 | 9 | 43 | 2589 | 183 | 843 | 1563 | 379 |
| 5-19 | 2 | 0 | 0 | 2 | 45 | 1428 | 64 | 628 | 736 | 538 |
| 20-44 | 19 | 4 | 2 | 13 | 32 | 3062 | 289 | 1192 | 1581 | 319 |
| 45-64 | 16 | 1 | 0 | 15 | 36 | 3375 | 275 | 1191 | 1909 | 315 |
| 65+ | 31 | 1 | 4 | 26 | 36 | 9476 | 102 | 3583 | 5791 | 340 |
| Unknown | 1 | 1 | 0 | 0 | 0 | 166 | 20 | 144 | 2 | 0 |
| **Total** | **81** | **10** | **6** | **65** | **192** | **20096** | **933** | **7581** | **11582** | **1891** |

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

**Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013**

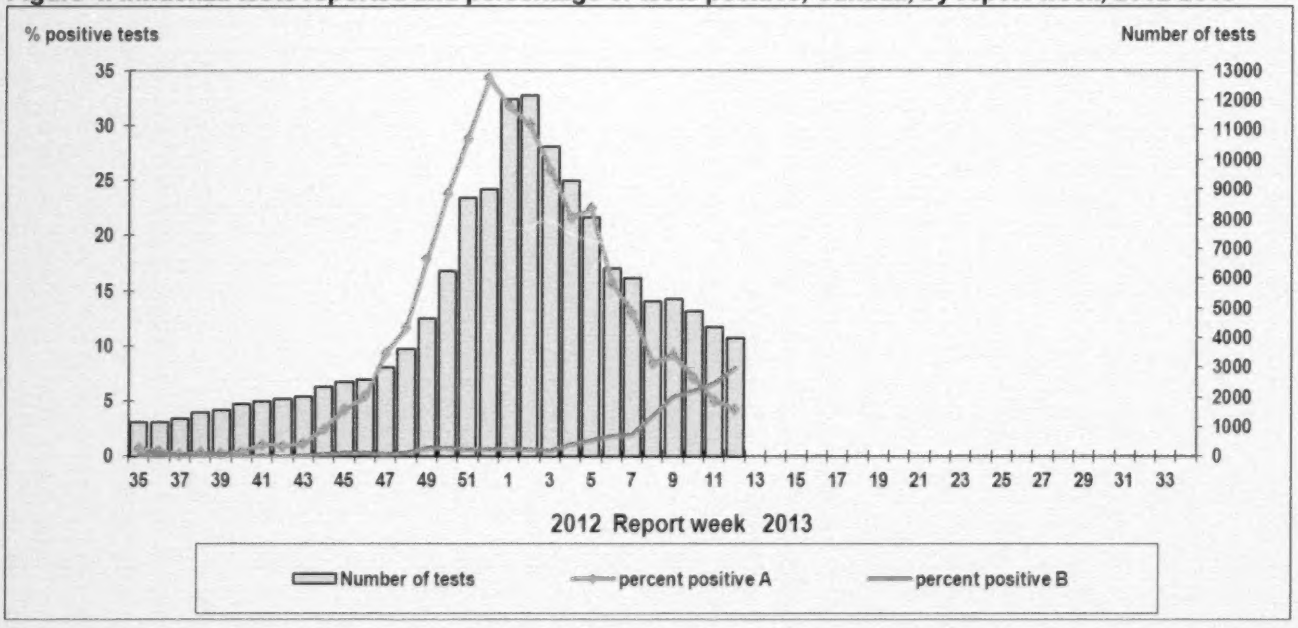
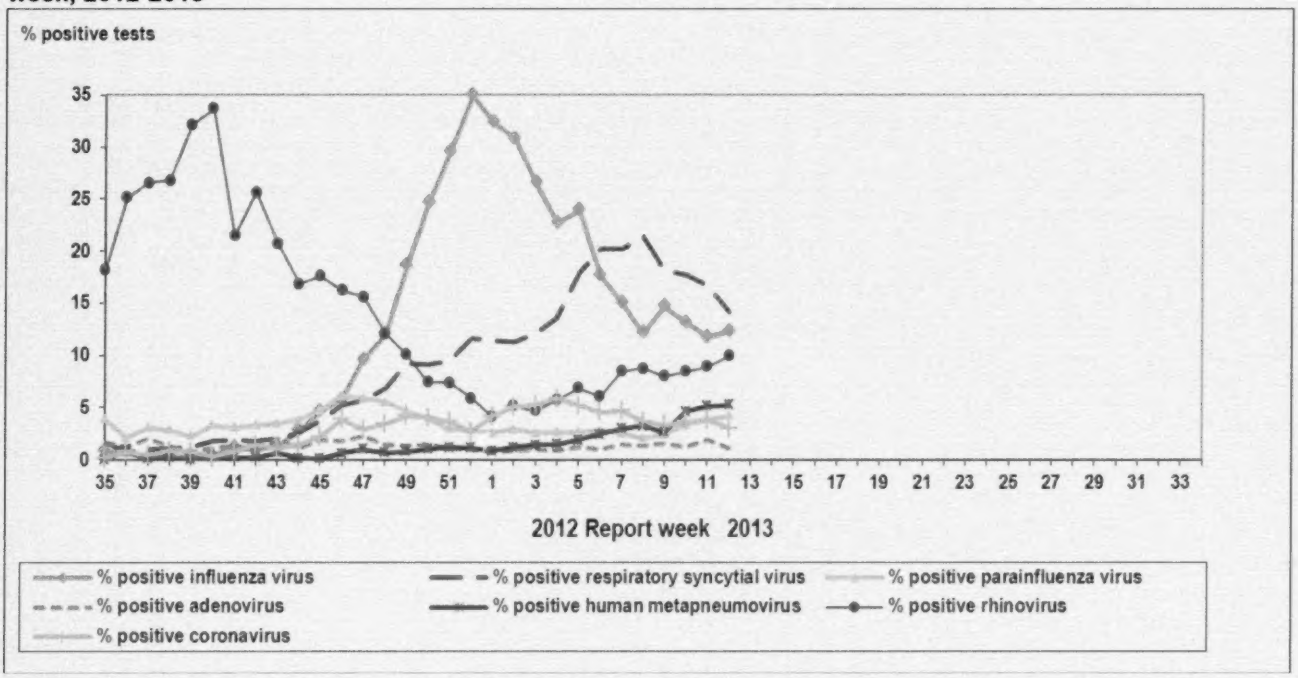


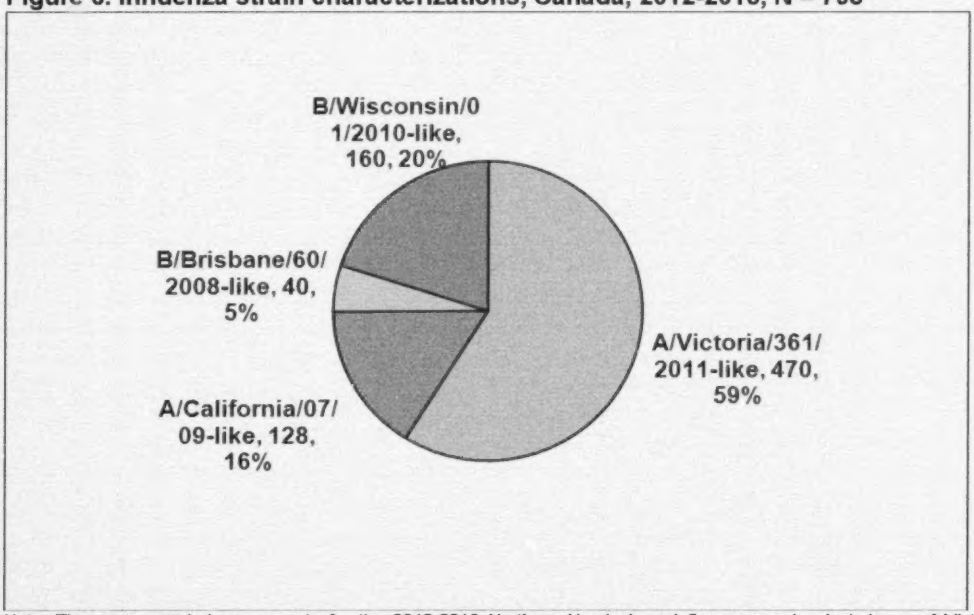
**Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013**




## Influenza Strain Characterizations

From week 35, 2012 to week 11, 2013, the National Microbiology Laboratory (NML) has antigenically characterized 798 influenza viruses. The 470 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 128 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 160 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 40 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

**Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 798**




Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

## Antiviral Resistance

From week 35, 2012 to week 11, 2013, NML has tested 730 influenza viruses for resistance to oseltamivir, and 727 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 886 influenza A viruses were tested for amantadine resistance and all were resistant (Table 3).

**Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013**

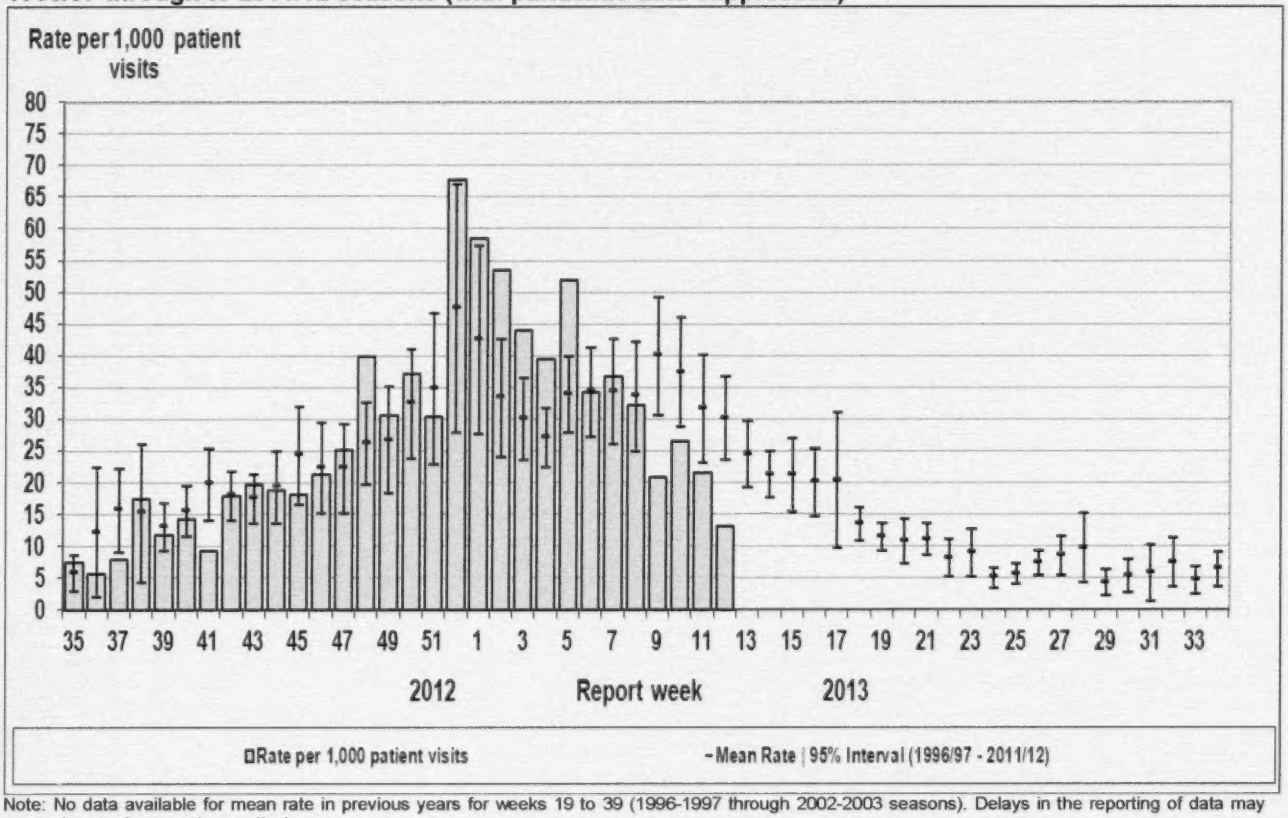
| Virus type and subtype | Oseltamivir | | Zanamivir | | Amantadine | |
|---|---|---|---|---|---|---|
| | # tested | # resistant (%) | # tested | # resistant (%) | # tested | # resistant (%) |
| A (H3N2) | 462 | 0 | 461 | 0 | 772 | 772 (100%) |
| A (H1N1) | 106 | 0 | 104 | 0 | 114 | 114 |
| B | 162 | 0 | 162 | 0 | NA* | NA* |
| TOTAL | 730 | 0 | 727 | 0 | 886 | 886 (100%) |

* NA – not applicable

## Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate decreased from 21.5 ILI consultations per 1,000 patient visits in week 11, to 13.1 in week 12 and is below the expected range (Figure 7). In week 12, the highest consultation rate was observed in children less than 5 years of age (46.8/1,000).

**Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)**




Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

## Pharmacy Surveillance

The Canadian antiviral prescription rate decreased from 48.9 antiviral prescriptions per 100,000 new prescriptions dispensed in week 11 to 27.9/100,000 in week 12. The antiviral prescription rate decreased for all age groups, with no prescriptions dispensed for infants in week 12.

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

## Severe Respiratory Illness Surveillance

### Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 12, 18 new laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, compared to 26 in week 11. Among the cases reported in week 12, 89% (16) were identified with influenza B and 11% (2) with A(H1N1)pdm09. For the fourth week in a row, the number of influenza B cases exceeded the number of influenza A cases, a reversal of the pattern seen earlier in the season. The age distribution is as follows: 5 (27.8%) between 6-23 months, 5 (27.8%) 2-4 years of age, 7 (38.9%) 5-9 years of age, and one (5.6%) 10-16 years of age. Two admissions to an Intensive Care Unit (ICU) was reported during week 12, one child 6-23 months of age, and one 5-9 years of age, both with influenza B.

Since the start of the 2012-13 season, a total of 736 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 609 (82.7%) with influenza A [of which 117 (19.2%) were A(H3N2), 21 (3.4%) were A(H1N1)pdm09 and the remaining 471 were A(unsubtyped)]; and 127 (17.3%) with influenza B. The distribution of cases by age group is as follows: 141 (19.2%) < 6 months of age; 175 (23.8%) age 6-23 months; 214 (29.1%) age 2-4 years; 143 (19.4%) age 5-9 years; and 63 (8.6%) age 10-16 years. Sixty-seven (9.1%) of the 736 cases were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

### Adult Influenza Hospitalizations and Deaths (PCIRN)

In week 12, nine new laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations were reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network, compared to 33 in week 11. Five of the nine hospitalizations were cases of influenza A(unsubtyped), two were influenza B and two were untyped. Six cases were ≥65 years of age, two were 45-64 years of age, and one was 20-44 years of age. One ICU admission was reported during the current week, in a person 20-44 years of age with influenza B. One death was reported, also a case 20-44 years of age with influenza B.

From week 45 to week 12, 1,584 influenza-associated adult hospitalizations have been reported by the PCIRN-SOS network: 1,477 (93.2%) with influenza A [of which 221 were A(H3N2), 13 were A(H1N1)pdm09, and 1,243 were A(unsubtyped)]; 56 (3.5%) with influenza B, and the type has not been reported for 51 cases. The age distribution of hospitalizations is as follows: 1,098 (69.3%) were ≥65 years of age, 314 (19.8%) were 45-64 years, 164 (10.4%) were 20-44 years, and 8 (0.5%) were <20 years of age. ICU admission was required for 169 hospitalizations; the majority of which were adults ≥65 years of age (102; 60.4%). Of the ICU admissions, 63 (37.3%) had at least one co-morbidity, three (1.8%) had no co-morbidities, and 103 had no information to date. A total of 91 deaths have been reported: 16 with influenza A(H3N2), 70 with influenza A(unsubtyped), 4 with influenza B, and one untyped. More than 80% of the deaths (76/91) were in adults ≥65 years of age, 12 (13.2%) were adults 45-64 years of age, and 3 (3.3%) were 20-44 years of age. Thirty-eight deaths occurred in individuals who had at least one co-morbidity. Detailed clinical information on co-morbidities is not known for the remaining cases.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

### Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In week 12, 100 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*. The majority of cases were influenza A (58; 58.0%). The highest proportion of hospitalisations continued to be adults ≥65 years of age (46.0%) and children 0-4 years of age (21.0%). Of the 33 cases with available data, three were admitted to the ICU: one adult ≥65 years of age, one 45-64 years of age, and one child 5-14 years of age. Two deaths were reported: both adults ≥65 years of age, one with influenza B and one with A(H3). It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases. Data was not received from Saskatchewan and the Yukon Territories in Week 12.

To date this season 4,044 influenza-associated hospitalizations have been reported; of which 94.1% have been influenza A. Of those subtyped (48.3%), influenza A(H3) was the predominant influenza strain. The cumulative proportion of hospitalizations in cases with influenza B continues to increase (5.9% in Week 12). Age information was available for 4,041 cases, and the age distribution is as follows: 2,236 (55.3%) were ≥65 years of age; 676 (16.7%) were 45-64 years of age; 359 (8.9%) were 20-44 years of age; 37 (0.9%) were 15-19 years of age; 163 (4.0%) were 5-14 years, and 570 (14.1%) were 0-4 years of age. Of the 1,085 cases with available data, there have been 171 hospitalisations for which admission to an ICU was required; the highest proportions are adults 45-64 years of age, closely followed by adults ≥65 years of age (36.8% and 35.1%, respectively). To date, 273 deaths have been reported: 227 were adults ≥65 years of age, 29 were adults 45-64 years; 11 were adults 20-44 years, one was a child 5-14 years of age, and 5 were children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

## International Influenza Updates

**WHO:** No new influenza surveillance update has been published by WHO since 15 March 2013.
*World Health Organization influenza update*

**United States:** No new influenza surveillance update has been published by the CDC since 22 March 2013.
*Centers for Disease Control and Prevention seasonal influenza report*

**Europe:** No new influenza surveillance update has been published by the WHO Europe since 22 March 2013.
*EuroFlu weekly electronic bulletin*

## Emerging Respiratory Pathogens

### Human Avian Influenza

No new WHO report of Influenza at the Human-Animal Interface has been published since 12 March 2013.
*WHO Influenza at the human-animal interface*

### Human Swine Influenza

No new influenza surveillance update has been published by the CDC since 22 March 2013.
*Centers for Disease Control and Prevention seasonal influenza report*

### Novel Coronavirus

Two new cases of novel coronavirus (nCoV) have been reported since 12 March 2013. On 23 March 2013, a contact of the case identified on March 12 was reported to have mild illness caused by nCoV infection. The individual recovered and was discharged from hospital. The most recent case was reported on 26 March 2013. A hospitalized 73-year old male was transferred from United Arab Emirates to Germany on 19 March 2013, and put into isolation in the ICU. He died on 26 March 2013. Notification of the death of the index patient in a family cluster reported on 11 February 2013 in the United Kingdom was also made on 26 March 2013.

Since April 2012, 17 laboratory-confirmed cases of nCoV have been identified, including 11 deaths.
*WHO – Coronavirus infections*

**FluWatch reports include data and information from the following sources:** laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

**ILI definition for the 2012-2013 season**

**ILI in the general population:** Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

**Definitions of ILI/Influenza outbreaks for the 2012-2013 season**

**Schools:** Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

**Hospitals and residential institutions:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

**Workplace:** Greater than 10% absenteeism on any day which is most likely due to ILI.

**Other settings:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

**Influenza Activity Levels Definition for the 2012-2013 season**

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

*We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.*

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.